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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/726,269	12/01/2003	Murali Basavaiah	ANDIP037/425584	3368

22434 7590 07/08/2009
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EXAMINER	
UNELUS, ERNEST	

ART UNIT	PAPER NUMBER
2181	

MAIL DATE	DELIVERY MODE
07/08/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/726,269	BASAVAIAH ET AL.	
	Examiner	Art Unit	
	ERNEST UNELUS	2181	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 April 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5-20 and 24-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5-20 and 24-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *04/03/09*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

RESPONSE TO AMENDMENT

Claim rejections based on prior art

Applicant's arguments filed 04/03/2009, with respect to the rejection(s) of claims 1-3, 5-20, and 24-31 under Mullendore et al. (US 2003/0185154) and Kaul et al. (US 2005/0050211) have been fully considered and are persuasive. However, based on the recent amendment and further consideration, a new ground(s) of rejection is made in view of Mullendore et al. (US 2003/0185154) and Kaul et al. (US 2005/0050211).

also, with respect to the applicant's argument of Kaul, one of the cited references, not disclosing OX-ID and RX_ID, this argument is not persuasive because paragraphs 0023 and 0024 of Kaul discloses a source address (the local address) and a destination address (the global address). The local address and the global address are being equated to OX_ID and RX_ID. Please, see the office action below for further detail on the new interpretation of the claim language.

INFORMATION CONCERNING OATH/DECLARATION

Oath/Declaration

1. The applicant's oath/declaration has been reviewed by the examiner and is found to conform to the requirements prescribed in **37 C.F.R. 1.63.**

INFORMATION CONCERNING DRAWINGS

Drawings

2. The applicant's drawings submitted are acceptable for examination purposes.

REJECTIONS BASED ON PRIOR ART

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. **Claims 1-3, 5-20, and 24-31**, are rejected under 35 U.S.C. 103(a) as being unpatentable over Mullendore et al. (US 2003/0185154) in view of Kaul et al. (US 2005/0050211).

5. As per **claims 1, 30, and 31**, Mullendore discloses an apparatus, comprising:

a port **(paragraph 0027 discloses "the switch device typically includes a processor, a buffer, a first port for coupling to a low speed or TCP/IP based network link")** configured to receive a write command frame **(write 16MB, as discloses in fig. 4 and paragraph 0061)** with an OX_ID or X ID exchange identifiers **(see paragraph 0054, which discloses identifying a host)**, as well as initiating **(initiating is being equated to the start of any transfer. The claim language is not specific with respect to 'initiating')** Host **(initiator 135)** and target **(target 145) (see fig. 4 and paragraph 0054. Initiating host and target identifiers is being interpreted by the examiner as identifying a host and a target which identified themselves)**;

a trapping mechanism **(paragraph 0046 discloses the buffer held the command within the switch)** configured to trap the write command frame; and

a processor **(the processor within the switch, as discloses in paragraph 0027)** configured to process the trapped write command frame **(see paragraphs 0029 and 0061, which discloses the processor within the switch is able partially transfer the write command)**;

wherein the processor is further configured to initialize a transfer ready command frame **(see paragraph 0061)** and send the transfer ready command frame to the initiating Host before receiving a transfer ready command frame from the target **(see fig. 5 and paragraph 0064, which discloses "When Fast Write is disabled, RTT messages are passed transparently from target to initiator". Clearly, fig. 5, shows XFER_RDY 128KB being sent from the switch 150 before it is received at the initiator (base on the arrow). As paragraph 0064 discloses, "RTT messages are passed transparently from target to initiator". This XFER_RDY 128KB is shown to be coming from the target).**

but fails to disclose expressly a frame having a header with an OX_ID or RX_ID, modifying the OX_ID of the write command frame header to include a new value of the OX_ID exchange identifier before sending the write command frame to the target, and to initialize a receiver exchange identifier (RX_ID) of a transfer ready command frame by assigning a value to the RX_ID.

Paragraph 0018 of the applicant's specification discloses "As previously noted, the OX_ID field 32 and the RX_ID field 34 are each 16 bits wide and are used for identifying the originating Host and target device".

Similarly, Kaul discloses a data packet having routing header identifying a source and a destination target; in the same way that a RX_ID is used to specifies a target. In other words, OX-ID and RX_ID are being interpreted as addresses for a source and a destination.

With respect a frame having a header with an OX_ID or RX_ID, modifying the OX_ID of the write command frame header to include a new value of the OX_ID exchange identifier before sending the write command frame to the target, and to initialize a receiver exchange identifier (RX_ID) of a transfer ready command frame by assigning a value to the RX_ID **(see paragraphs 023 and 0024 of Kaul, which disclose a local address, which is being equated to the OX_ID and a global address, which is being equated to the RX_ID. *'modifying the OX_ID of the write command frame header to include a new value of the OX_ID exchange identifier'* is being equated to the NAT modifying a header to change the source address to the global address, as discloses in paragraph 0023. *'to initialize a receiver exchange identifier (RX_ID) of a transfer ready command frame by assigning a value to the RX_ID'* is being equated to the NAT changing the global address to the local address, as discloses in paragraph 0024)**.

Mullendore et al. (US 2003/0185154) and Kaul et al. (US 2005/0050211) are analogous art because they are from the same field of endeavor of packet switching in a wide area network (WAN) and/or local area network (LAN).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify a congestion management systems and methods are provided to overcome head-of-line blocking issues resulting from slower-speed network links, such as low speed WAN

links or links using a TCP/IP based storage protocol as described by Mullendore and a method and apparatus to manage network addresses are described as taught by Kaul.

The motivation for doing so would have been because Kaul teaches, **"The remote user agent responds to the INVITE message using the local user agent's address information. This ensures that the proper signaling path is established between the user agents" (see paragraph 0031).**

Therefore, it would have been obvious to combine Kaul et al. (US 2005/0050211) with Mullendore et al. (US 2003/0185154) for the benefit of creating the apparatus to obtain the invention as specified in claims 1, 30, and 31.

6. As per **claim 2**, the combination of Mullendore and Kaul discloses "the apparatus of claim 1" **[See rejection to claim 1 above]**, Mullendore further discloses, "wherein the Switch **(150)** is an initiating Switch coupled to the Host **(135)** in a first SAN **(165) (see fig. 4).**

7. As per **claim 3**, the combination of Mullendore and Kaul discloses "the apparatus of claim 2" **[See rejection to claim 2 above]**, "wherein the processor of the initiating Switch is further configured to modify the write command before forwarding the write command to the target **(see paragraphs 0029 and 0061 of Mullendore which discloses the processor within the switch, and paragraph 0077 discloses the switch being a router. See also paragraphs 0023 and 0024 of Kaul)**.

8. As per **claim 5**, the combination of Mullendore and Kaul discloses "the apparatus of claim 4" **[See rejection to claim 4 above]**, "wherein the initiating Switch uses the initialized

RX_ID value as a handle for accessing information pertaining to the write command session in a sessions ID table **(See also paragraphs 0036 and 0044 of Kaul).**

9. As per **claim 6**, the combination of Mullendore and Kaul discloses "the apparatus of claim 4" **[See rejection to claim 4 above]**, Mullendore discloses "wherein the processor of the initiating Switch **(135)** is further configured to issue a Transfer Ready command **(XFER_RDY 256KB)** to the Host **(135) (see fig. 4)**.

10. As per **claim 7**, the combination of Mullendore and Kaul discloses "the apparatus of claim 5" **[See rejection to claim 5 above]**, "wherein the initiating Switch **(150)** is further configured to initialize and use the initialized RX_ID value for all communication related to the write frame **(16MB)** between the initiating Switch **(150)** and the Host **(135) (see paragraph 0061 and fig. 4 of Mullendore and paragraphs 0023 and 0024 of Kaul)**.

11. As per **claim 8 and 15**, the combination of Mullendore and Kaul discloses "the apparatus of claim 3" **[See rejection to claim 3 above]**, "wherein the initiating Switch **(150)** is further configured to modify the write command by modifying the OX_ID value for the write command before forwarding the write command to the target **(See paragraph 0023 and 0024 of Kaul).**

12. As per **claim 9**, the combination of Mullendore and Kaul discloses "the apparatus of claim 2" **[See rejection to claim 2 above]**, Mullendore discloses, "wherein the initiating Switch **(150)** is further configured to transfer additional data frames **(256KB) (paragraph 0061 discloses that the switch separate the command into smaller portions and send those**

portions (256KB) separately to the target) to the target **(145)** when the initiating Switch **(150)** receives a Transfer Ready command **(XFER_RDY 256KB)** associated with the write frame **(write 16MB)** from the target **(see fig. 4)**.

13. As per **claim 10**, the combination of Mullendore and Kaul discloses "the apparatus of claim 1" **[See rejection to claim 1 above]**, Mullendore discloses, "wherein the Switch **(140)** is a target Switch coupled to the target **(145) (see fig. 4)**.

14. As per **claim 11**, the combination of Mullendore and Kaul discloses "the apparatus of claim 10" **[See rejection to claim 10 above]**, Mullendore discloses, "wherein the target Switch **(140)** forwards the write command **(16MB)** to the target **(145) (see fig. 4)**.

15. As per **claims 12 and 25**, the combination of Mullendore and Kaul discloses "the apparatus of claim 10" **[See rejection to claim 10 above]**, Mullendore discloses, "wherein the target Switch **(140)** forwards data frames **(128KB)** associated with the write command **(16MB)** to the target **(145)** after receiving a Transfer Ready command **(XFER_RDY 128KB)** from the target **(145) (see fig. 4)**.

16. As per **claim 13**, the combination of Mullendore and Kaul discloses "the apparatus of claim 12" **[See rejection to claim 12 above]**, Mullendore discloses, "wherein the target Switch **(140)** is further configured to buffer the data frames **(128KB)** prior to receipt of the Transfer Ready command **(XFER_RDY 128KB) see paragraph 0061 and fig. 4**.

17. As per **claim 14**, the combination of Mullendore and Kaul discloses "the apparatus of claim 12" **[See rejection to claim 12 above]**, "wherein target Switch **(140)** is further configured

to maintain **(the buffer inside the switch having a identified data)** a sessions ID table and to use the OX_ID of the write command as an index to the session corresponding to the write command **(see paragraphs 0054 and 0061 of Mullendore and paragraphs 0023 and 0024 of Kaul)**.

18. As per **claim 16**, the combination of Mullendore and Kaul discloses "the apparatus of claim 5" **[See rejection to claim 5 above]**, wherein the target Switch **(140)** is further configured to modify the OX_ID value with communications between the target Switch **(140)** and the target **(145) (see paragraphs 0029 and 0061 of Mullendore and paragraphs 0023 and 0024 of Kaul).**

19. As per **claim 17,** the combination of Mullendore and Kaul discloses "the apparatus of claim 1" **[See rejection to claim 1 above]**, wherein the Switch is further configured to use the RX_ID value of trapped write commands to specify the amount of buffer space needed for the write command and use the write command frame to request the needed buffer space **(paragraphs 0023 and 0024 of Kaul)**.

20. As per **claims 18 and 26,** the combination of Mullendore and Kaul discloses "the apparatus of claim 17" **[See rejection to claim 17 above]**, wherein the Switch is further configured to use the RX_ID value of trapped write commands to specify the amount of buffer space larger than needed for the write command and use the additional buffer space for subsequent write commands so that the Switch need not wait for a Transfer Ready command to

transfer data related to the subsequent write command **(see paragraph 0061 and col. 10, lines 58-65 and paragraphs 0023 and 0024 of Kaul)**.

21. As per **claims 19 and 28**, the combination of Mullendore and Kaul discloses "the apparatus of claim 1" **[See rejection to claim 1 above]**, Mullendore discloses, "wherein the Switch **(150)** is further configured to, in the event the Switch does not have sufficient buffer space for the write command **(write 16MB) (see paragraph 0064)**, to either: (i) generate a busy status signal to the initiating Host; (ii) placing the write command on a pending wait list **(paragraph 0064 discloses, "then switch 150 holds the RTT message until buffer resources become sufficient to receive the entire write data specified by the RTT message ")** ; or (iii) forwarding the write command to the target **(see paragraph 0070)**.

22. As per **claim 20**, the combination of Mullendore and Kaul discloses "the apparatus of claim 1" **[See rejection to claim 1 above]**, Mullendore discloses, "wherein a first SAN **(360)** including the Switch **(switch A or B)**; a second SAN **(365)** including a second Switch **(switch C or D)**; and an inter-SAN network **(310)** connecting the first SAN and the second SAN **(see fig. 13)**.

23. As per **claims 24, 27, and 29**, Mullendore discloses an apparatus, comprising: receiving a write command **(write 16MB)** at a switch, the write command specifying a host **(initiator 135)** identifier corresponding to a host and a target **(target 145)** identifier corresponding to a target **(paragraph 0027 discloses "the switch device typically includes a processor, a buffer, a first port for coupling to a low speed or TCP/IP based network link". see also fig. 4 and**

paragraph 0054); the write command also including an originator exchange identifier (OX_ID) with an assigned value value and an uninitialized receiver exchange identifier (RX_ID) with a default value **(see paragraph 0054, which discloses identifying a host and a target)**; initializing the receiver exchange identifier (RX_ID) **(paragraph 0046 discloses the buffer held the command within the switch)**; sending a transfer ready command including the initialized RX_ID to the host prior to receiving a transfer ready command from the target **(see fig. 5 and paragraph 0064, which discloses "When Fast Write is disabled, RTT messages are passed transparently from target to initiator". Clearly, fig. 5, shows XFER_RDY 128KB being sent from the switch 150 before it is received at the initiator (base on the arrow). As paragraph 0064 discloses, "RTT messages are passed transparently from target to initiator". This XFER_RDY 128KB is shown to be coming from the target)**, wherein sending the transfer ready command to the host allows the switch to operate as a proxy for the target; and forwarding the modified write command to the target **(see fig. 5 and paragraph 0072)**.

but fails to disclose expressly a frame having a header with an OX_ID or RX_ID, modifying the OX_ID of the write command frame header to include a new value of the OX_ID exchange identifier before sending the write command frame to the target, and to initialize a receiver exchange identifier (RX_ID) of a transfer ready command frame by assigning a value to the RX_ID.

Paragraph 0018 of the applicant's specification discloses "As previously noted, the OX_ID field 32 and the RX_ID field 34 are each 16 bits wide and are used for identifying the originating Host and target device".

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With respect a frame having a header with an OX_ID or RX_ID, modifying the OX_ID of the write command frame header to include a new value of the OX_ID exchange identifier before sending the write command frame to the target, and to initialize a receiver exchange identifier (RX_ID) of a transfer ready command frame by assigning a value to the RX_ID **(see paragraphs 023 and 0024 of Kaul, which disclose a local address, which is being equated to the OX_ID and a global address, which is being equated to the RX_ID. *'modifying the OX_ID of the write command frame header to include a new value of the OX_ID exchange identifier'* is being equated to the NAT modifying a header to change the source address to the global address, as discloses in paragraph 0023. *'to initialize a receiver exchange identifier (RX_ID) of a transfer ready command frame by assigning a value to the RX_ID'* is being equated to the NAT changing the global address to the local address, as discloses in paragraph 0024)**.

Mullendore et al. (US 2003/0185154) and Kaul et al. (US 2005/0050211) are analogous art because they are from the same field of endeavor of packet switching in a wide area network (WAN) and/or local area network (LAN).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify a congestion management systems and methods are provided to overcome head-of-line blocking issues resulting from slower-speed network links, such as low speed WAN

links or links using a TCP/IP based storage protocol as described by Mullendore and a method and apparatus to manage network addresses are described as taught by Kaul.

The motivation for doing so would have been because Kaul teaches, **"The remote user agent responds to the INVITE message using the local user agent's address information. This ensures that the proper signaling path is established between the user agents" (see paragraph 0031).**

Therefore, it would have been obvious to combine Kaul et al. (US 2005/0050211) with Mullendore et al. (US 2003/0185154) for the benefit of creating the apparatus to obtain the invention as specified in claims 24, 27, and 29.

RELEVANT ART CITED BY THE EXAMINER

24. The following prior art made of record and not relied upon is cited to establish the level of skill in the applicant's art and those arts considered reasonably pertinent to applicant's disclosure. See **MPEP 707.05(c)**.

25. The following reference teaches a SAN using Fibre Channel header to modifying a Receiver Exchange Identifier (responder identifier):

US 2004/0039939

CLOSING COMMENTS

Conclusion

a. STATUS OF CLAIMS IN THE APPLICATION

26. The following is a summary of the treatment and status of all claims in the application as recommended by **M.P.E.P. 707.07(i)**:

a(1) CLAIMS REJECTED IN THE APPLICATION

27. Per the instant office action, claims 1-3, 5-20, and 24-31 have received a final action on the merits.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

b. DIRECTION OF FUTURE CORRESPONDENCES

28. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ernest Unelus whose telephone number is (571) 272-8596. The examiner can normally be reached on Monday to Friday 9:00 AM to 5:00 PM.

IMPORTANT NOTE

29. If attempts to reach the above noted Examiner by telephone is unsuccessful, the Examiner's supervisor, Mr. Alford Kindred, can be reached at the following telephone number: Area Code (571) 272-4037.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Alford W. Kindred/
Supervisory Patent Examiner, Art Unit 2181
June 30, 2009

Ernest Unelus
Examiner
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